

REMARKS

The applicant thanks the examiner for the telephone interview held on May 24, 2011. The examiner and the applicant's representative discussed claims 3, 6, and 37, the Blackburn, Bajohr, and Fohl references, and the issues mentioned in the office action. The examiner agreed that if claim 37 is determined to be allowable, the restriction shall be withdrawn and all of the dependent claims shall be allowable. Amendments that may render the claims allowable over the cited prior art references were also discussed. The proposed amendments are in the claims in this Reply.

In response to the office action dated December 27, 2010, the applicant has the following remarks.

The applicant respectfully traverses the requirement for restriction and provisionally elects claims 2, 3, 5, 6, 15, 16, 19-26, and 35-37, corresponding to species 1, Fig. 1, for further prosecution in this application should the requirement not be withdrawn. The applicant notes that claim 37 defines novel and inventive subject matter over the cited references for the reasons discussed below. Because claim 37 is the only independent claim, there is a special technical feature that is common to all of the claims. Thus, there is unity of invention under PCT rules 13.1 and 13.2. The applicant requests the restriction be withdrawn.

The examiner stated that the claims are directed to more than one species of the generic invention, and that the means plus function language "retaining means" covers all the disclosed embodiments of species 1-15. The applicant notes that the examples in figures 1-3 have the same "retaining means" -- the barbs 23 and 24. Thus, the examples shown in figures 1-3 belong to the same species. In the event that claim 37 is considered not to be allowable, the applicant requests the restriction among species 1, 2, and 3 be withdrawn.

The comments of the Applicant below are each preceded by related comments of the Examiner (in small, bold type).

Claims 2, 3, 5, 6, 15-17, 19-26 and 35-37 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Blackburn (US 2,763,211).

Blackburn's detonator assembly clearly anticipates the invention as currently claimed (see especially the retaining means 9 and 10 for retaining the bridge elements 7, 8, in the plug 13; Figs. 1-4; col. 2, lines 40-72. In the alternative, any differences between the claims of the instant application and Blackburn's invention comprise only that which would have been an obvious design choice to one of ordinary skill in the art at the time that the invention was made.

Claim 37

Blackburn does not disclose and would not have made obvious “an electrical connector for secure retention of a signal transmission line to the detonator,” as recited in claim 37.

The examiner contends that the lead wires 7, 8 of Blackburn correspond to the at least one bridge element of claim 37, and that the plug 13 of Blackburn corresponds to the plug member of claim 37. The applicant disagrees.

Blackburn does not disclose or suggest that the lead wires 7, 8 are connected to separate signal transmission lines. The applicant contends that the lead wires 7, 8 of Blackburn does not correspond to the at least one bridge element of claim 37. Instead, the lead wires 7, 8 of Blackburn correspond to the signal transmission line of claim 37. Blackburn discloses a blasting cap connected to signal transmission lines, in which strips 9 and 10 are used to maintain proper spacing between the ends of the signal transmission lines. Because the lead wires 7, 8 of Blackburn correspond to the “signal transmission line” of claim 37, Blackburn does not disclose or suggest an electrical connector having “at least one bridge element,” in which the at least one bridge element is in addition to the signal transmission line.

As discussed in page 2 of the applicant's specification, the traditional detonator-to-signal transmission line connections have several disadvantages. One particular disadvantage is that the wires from the signal transmission line must be properly installed (e.g. by soldering) to the internal components of the detonator in the factory production line setting, and the

detonator/signal transmission line assemblies must be shipped accordingly. Each detonator may be selected from a variety of detonators (for example each having different delay periods or security functions), and each signal transmission line may comprise a desired length. As a result, a large number of possible detonator/signal transmission line combinations are possible, thereby increasing the costs and logistics of product transportation and storage of a range of commercial products.

By comparison, the invention of claim 37 provides an electrical connector for secure retention of a signal transmission line to the detonator, so that the electrical connector can be incorporated into modularized detonator systems (page 19, lines 16-19 of the applicant's specification). The advantage is not provided by Blackburn.

Furthermore, in amended claim 37, the first end of the bridge element is configured to maintain an electrical contact with the signal transmission line, the electrical contact being positioned external to the detonator and the plug member and configured to provide a breakage point for an electrical connection between the signal transmission line and the electrical component of the detonator in the event of an excess force applied to the signal transmission line and the connected detonator to reduce a likelihood of breaking the electrical connection between the signal transmission line and the electrical component of the detonator at a location internal to the detonator or the plug member. This feature is not disclosed by Blackburn.

It would not have been obvious to a person of ordinary skill in the art, after reading Blackburn, to implement a detonator assembly in which the signal transmission line is not connected directly to the detonator, but rather, connected to an electrical connector that is in turn connected to the detonator. There is no suggestion in Blackburn as to why an additional electrical connector would be useful.

Claim 37 is patentable over Blackburn for at least the above reasons.

Claim 3

Blackburn does not disclose and would not have made obvious "the first end (of a bridge element) comprises a wire clasp or crimp for grasping the end of a wire emerging from the signal

transmission line,” as recited in claim 3. If the examiner contends that the strips 9, 10 of Blackburn correspond to the “retaining means” of claim 37, then Blackburn does not disclose or suggest any wire clasp or crimp for grasping the end of a wire.

Claim 6

Blackburn does not disclose and would not have made obvious “said at least one bridge element consists of a metal and is formed by stamping a template from sheet metal,” as recited in claim 6. If the examiner contends that the lead wires 7, 8 of Blackburn correspond to the at least one bridge element of claim 37, Blackburn does not disclose or suggest that the lead wires 7, 8 are formed by stamping a template from sheet metal.

8. Claims 2, 3, 5, 6, 15-17, 19-26 and 35-37 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fohl (US 5,334,025).

Fohl's detonator assembly clearly anticipates the invention as currently claimed (see especially the retaining means 36, 37, 38 for retaining the bridge elements 16, 14 in the plug 18; Figs. 5, 6. In the alternative, any differences between the claims of the instant application and Fohl's detonator assembly comprise only that which would have been an obvious design choice for one of ordinary skill in the art at the time that the invention was made.

Claim 37

Fohl does not disclose and would not have made obvious “an electrical connector for secure retention of a signal transmission line to the detonator,” in which the electrical connector comprises at least one bridge element and “at least one wire retention member, each wire retention member to securely connect an end of one of the at least one bridge element to a corresponding signal transmission line,” as recited in claim 37.

Fohl discloses an electrical plug connection on a pyrotechnical gas generator (10) provided with an electrical igniter for restraining systems in vehicles (abstract). The electrical igniter has a priming cap 11 in which the terminals of the priming cap 11 are connected to two contact members 14, 16 (col. 2, lines 31-33). The contact members 14, 16 project into the interior of the plug base 18 (col. 2, lines 40-42).

The examiner appears to contend that the gas generator 10 of Fohl corresponds to the detonator of claim 37, the contact members 14, 16 of Fohl correspond to the at least one bridge element of claim 37, and the plug base 18 of Fohl corresponds to the plug member of claim 37. The applicant disagrees.

In Fohl, the contact members 14, 16 are part of and project from the gas generator 10, and are inserted through holes in the plug base 18. This configuration is different from the invention of claim 37, in which the bridge element is part of the electrical connector and has first and second ends that emerge from the plug member. Therefore, Fohl does not disclose or suggest the bridge element of claim 37. Since there is no bridge element as defined in claim 37 in the embodiment of Fohl, there can also be no retaining means as defined in claim 37 in the embodiment of Fohl.

Moreover, the plug base 18 of Fohl is not secured to an opening of a shell of the gas generator 10. Fohl does not disclose or suggest that the gas generator 10 has a shell having an opening that can accommodate the plug base 18. Although the shell of the gas generator 10 has holes to allow the contact members 14, 16 to pass, the holes of the gas generator 10 do not correspond to the "opening" of the detonator shell of claim 37. The plug base 18 is not secured to the holes of the gas generator 10. Rather, the plug base 18 merely has a surface that contacts a corresponding surface of the gas generator 10, in which holes in the plug base 18 line up with holes in the gas generator 10 to allow the contact members 14, 16 to pass. Thus, Fohl does not disclose or suggest "said electrical connector being fixed to said detonator shell at least in part by securing said plug member to said opening" of a detonator shell, as recited in claim 37.

Claim 37 is patentable over Fohl for at least the above reasons.

Claim 3

Fohl does not disclose and would not have made obvious "the first end (of a bridge element) comprises a wire clasp or crimp for grasping the end of a wire emerging from the signal transmission line," as recited in claim 3. If the examiner contends that the contact members 14,

16 of Fohl correspond to the “bridge element” of claim 37, then Fohl does not disclose or suggest that the end of bridge element comprises a wire clasp or crimp for grasping the end of a wire.

Claim 6

Fohl does not disclose and would not have made obvious “said at least one bridge element consists of a metal and is formed by stamping a template from sheet metal,” as recited in claim 6. If the examiner contends that the contact members 14, 16 of Fohl correspond to the at least one bridge element of claim 37, Blackburn does not disclose or suggest that the contact members 14, 16 are formed by stamping a template from sheet metal.

Claims 2, 3, 5, 6, 15-17, 19-26 and 35-37 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bajohr et al. (US 4,331,079).

The Bajohr et al. detonator assembly clearly anticipates the invention as currently claimed (see especially the twisting retaining means 7 depicted in Fig. 2 retaining the bridge elements 4, 5 in the plug 2. In the alternative, any differences between the claims of the instant application and the Bajohr et al. detonator assembly comprise only that which would have been an obvious design choice for one of ordinary skill in the art at the time that the invention was made.

Claim 37

Claim 37 recites a detonator and an electrical connector for secure retention of a signal transmission line to the detonator.

Bajohr discloses an igniter system 6 and fuze wires 4, 5 that extend through a plug 2 and are connected to the igniter system 6. The fuze wires 4, 5 of Bajohr correspond to the signal transmission line of claim 37. Because the fuze wires 4, 5 connect to the igniter system 6 directly, Bajohr does not disclose or suggest a separate electrical connector having at least one bridge element that connects the fuze wires 4, 5 to the igniter system 6. Therefore, Bajohr does not disclose or suggest an electrical connector for secure retention of a signal transmission line to a detonator, as recited in claim 37.

Furthermore, in amended claim 37, the first end of the bridge element is configured to maintain an electrical contact with the signal transmission line, the electrical contact being

positioned external to the detonator and the plug member and configured to provide a breakage point for an electrical connection between the signal transmission line and the electrical component of the detonator in the event of an excess force applied to the signal transmission line and the connected detonator to reduce a likelihood of breaking the electrical connection between the signal transmission line and the electrical component of the detonator at a location internal to the detonator or the plug member. This feature is not disclosed by Bajohr.

It would not have been obvious to a person of ordinary skill in the art, after reading Bajohr, to implement a detonator assembly in which the signal transmission line is not connected directly to the detonator, but rather, connected to an electrical connector that is in turn connected to the detonator. There is no suggestion in Bajohr as to why an additional electrical connector would be useful.

Claim 37 is patentable over Bajohr for at least the above reasons.

Claim 3

Bajohr does not disclose and would not have made obvious “the first end (of a bridge element) comprises a wire clasp or crimp for grasping the end of a wire emerging from the signal transmission line,” as recited in claim 3. If the examiner contends that the fuze wires 4, 5 of Bajohr correspond to the “bridge element” of claim 37, then Bajohr does not disclose or suggest that the end of bridge element comprises a wire clasp or crimp for grasping the end of a wire.

Claim 6

Bajohr does not disclose and would not have made obvious “said at least one bridge element consists of a metal and is formed by stamping a template from sheet metal,” as recited in claim 6. If the examiner contends that the fuze wires 4, 5 of Bajohr correspond to the at least one bridge element of claim 37, Blackburn does not disclose or suggest that the fuze wires 4, 5 are formed by stamping a template from sheet metal.

All of the dependent claims are patentable for at least the reasons for which the claims on which they depend are patentable.

Canceled claims have been canceled without prejudice or disclaimer.

Any circumstance in which the applicant has addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner. Any circumstance in which the applicant has made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims. Any circumstance in which the applicant has amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

The Petition for Extension of Time fee in the amount of \$1,110 and excess claim fee in the amount of \$52 is being paid concurrently herewith on the Electronic Filing System (EFS) by way of deposit account authorization. Please apply all charges or credits to deposit account 06-1050, referencing attorney docket 20996-0003US1.

Respectfully submitted,

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